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COUNTY OF LOS ANGELES

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TO: Each Supervisor

FROM: James A. Noyes
Director of Public Works

PROPOSED MULTIWAY STOP CONTROL PRACTICE FOR LOCAL RESIDENTIAL STREET PEDESTRIAN SAFETY TASK FORCE ACTION PLAN ITEM

Our County of Los Angeles Pedestrian Safety Task Force Action Plan proposed, among other things, that a review be conducted to determine whether the warrants for determining the need for multiway "STOP" signs at intersections adjacent to schools should be broadened in scope to include application at intersections other than those directly adjacent to schools. We have completed a study that included an analysis of pedestrian accident data and a search of guidelines in use or proposed by other jurisdictions and agencies around the nation.

As described in our attached staff report, we propose to submit for adoption by your Board a new set of guidelines for installing multiway stop controls at intersections of streets that are primarily functioning as local residential neighborhood streets. These warrants would require lower traffic volume and accident history criteria than the Federal or State warrants that currently apply at all intersections regardless of their location. While we recommend moving forward with the proposed set of guidelines shown below, we still concur with the State of California Department of Transportation (Caltrans) criteria practice stated in the Caltrans Traffic Manual against using stop signs for speed control purposes. The guidelines for multiway stop controls at arterial and collector streets will remain as outlined by current State and Federal guidelines. County Counsel has reviewed and voiced no objections to our proposal. With your concurrence, we anticipate submitting our recommendations to your Board for approval next month.

PROPOSED GUIDELINES FOR MULTIWAY STOP CONTROL PRACTICE FOR LOCAL RESIDENTIAL NEIGHBORHOOD STREETS	
Factors to Consider	<i>An intersection <u>meeting two of the criteria below</u> is a candidate for multiway stop controls.</i>
Volume	Total intersection volume is equal to or greater than 300 veh/hr average for any 7 hours (may include pedestrians) AND Side street volume is equal to or greater than one-third of total intersection volume for the same 7 hours.
Collisions	3 or more accidents in 12-month period or 4 in 24-month period.
Visibility	Intersection sight distance less than 150 feet.
Speed	The 85th percentile speed on the uncontrolled street is greater than 35 mph.
Volume Adjustment Factors	Volume criteria reduced to 60 percent of the above volume thresholds, if <u>all</u> the following are met: Residential frontage with 25-mph speed limit. Neither street is over 40 feet wide. No other "STOP" signs or traffic signal controls within 600 feet. Intersection near activity center AND 25 peds through intersection during any 2 hours.

This action is consistent with the County Strategic Plan Goal of Service Excellence as implementation will enhance highway safety and accommodate traffic-related concerns of residents.

We anticipate that adopting these guidelines will provide Public Works greater flexibility in addressing residents' traffic and pedestrian concerns in residential areas where multiway stop controls are requested.

If you have any questions, please call me or have your staff contact my Deputy, Tom Alexander, at (626) 458-4012.

JPA:rj

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Attach.

cc: Chief Administrative Office
Executive Office

ATTACHMENT - STAFF REPORT
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

Background

Except at intersections of local streets adjacent to schools, the County of Los Angeles follows the guidelines set forth in the State of California Department of Transportation (Caltrans) Traffic Manual to determine those locations where multiway stop controls should be considered. A separate guideline was adopted by the Board of Supervisors in 1993 for evaluating the need of multiway stop controls at intersections contiguous to schools based on the two highest pedestrian traffic periods of the day. The County of Los Angeles Pedestrian Safety Task Force has proposed a review to determine whether the school area guideline should be broadened to include intersections beyond those immediately adjacent to the schools.

Alternative guidelines for consideration of multiway stop control have been developed by other agencies and governing bodies which may be applicable to the County of Los Angeles. The attached tables summarize the multiway stop control guidelines currently in use or under consideration by other agencies. The purpose of this report is to review those guidelines and develop proposed alternative guidelines for the County of Los Angeles.

Discussion

To understand the scope of the pedestrian safety issues on County-maintained roadways, an analysis of pedestrian-involved accidents on streets within the unincorporated County areas for the 1999 and 2000 calendar years reveals the following information:

	1999	2000
Total Number of Pedestrian Accidents	376	327
Mid-block Pedestrian Accidents	253 (67.3%)	174 (53%)
Ped. Accidents at Signal-Controlled I/S	69 (18.4%)	73 (22%)
Ped. Accidents at Uncontrolled I/S Xings	54 (14.3%)	77 (24%)
Ped. Accidents at 3-Way and 4-Way STOP I/S	Unknown*	3 (1%)
Involving Pedestrians Aged 0 to 18 Yrs	163 (43.4%)	161 (49.2%)
Fatal Pedestrian Accidents	14	15
Ped. Accidents Adjacent to Schools	Unknown*	38
Ped. Accidents within 2 Blocks of School	Unknown*	79

Note: Percentages in parenthesis show proportionate share of total pedestrian accidents for the year.

* This information was not determined for 1999.

Current Multiway Stop Control Standard

The current Federal Manual on Uniform Traffic Controls (MUTCD) and the Caltrans Traffic Manual establish the guideline that four-way stop control may be considered at intersections where the average intersection traffic volume exceeds 500 vehicle/hour during the highest eight hours of the day with 200 vehicle/hour entering from the side street, and if there have been five or more correctable accidents within the latest 12-month period, and if other less restrictive measures have been tried or examined first. However, an average hourly volume of 500 vehicle/hour translates to a total daily intersection volume of at least 7,500 vehicles per day. According to County of Los Angeles accident statistics, we would expect an average of one accident per year at a two-way stop controlled intersection with that level of traffic. Based on this, the standard requiring five or more accidents per year to consider multiway stop control warrants may need to be reconsidered given the lower volume at residential neighborhood intersections.

Neighborhood Stop Control Standards

Residents and policy makers often request the installation of multiway stop controls at intersections of streets in residential neighborhoods to influence the volume and prevailing speed of traffic in the vicinity. Such requests often stem from the perception that stop controls produce slower speeds and discourage cut-through traffic on the neighborhood streets. These streets usually have daily traffic volumes well below the nationally accepted warrants for multiway stop control. While experience shows that intersection stop controls do not reduce overall traffic speed along a residential street, they do break up the flow of traffic along a route in a manner acceptable to local residents but undesirable to motorists using the route for through travel.

In addition, an accident rate of five in 12 months at an intersection of local neighborhood streets would be alarming to the public and likely to have generated a strong outcry long before that many incidents had occurred. While one or even two accidents in a year's time may not signify a particular problem requiring corrective action, three accidents in 12 months may suggest a pattern of conflict that could potentially be addressed with additional traffic control.

In an effort to be more flexible and responsive to the requests of residents for multiway stop controls at neighborhood intersections, a stop sign installation policy more directly focused to local street traffic conditions is appropriate. As previously mentioned, numerous agencies and jurisdictions have investigated establishing a separate set of guidelines for multiway stop controls for these local intersection settings. Among such factors as lower intersection volume standards and lower accident experience levels, the guidelines also consider reduced sight distance at the intersection, prevailing speed, street width, proximity to controlled

intersections, and activity centers that generate pedestrian traffic.

Attachment
Staff Report
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The January-February 1999 issue of Westernite, District 6, of the Institute of Transportation Engineers, published a recommendation for modified criteria for multiway stop controls (see attached table). These modified criteria incorporate all of the aforementioned factors. These criteria incorporate a more realistic standard to correlate traffic volume and accident experience to acceptable levels for local street intersections.

Conclusion

Based on the correlation of intersection traffic volume versus accident experience in the County of Los Angeles, it is recommended that multiway stop control guidelines be modified to allow consideration of multiway stop controls at intersections where at least two of the following conditions exist:

Volume: Total intersection volume equals or exceeds 300 vehicles per hour for each of seven hours of the day; AND

The side street volume of vehicles plus pedestrians equals or exceeds one-third of the total intersection volume during the same seven hours.

Adjustment Factors: Volume criteria can be reduced to 60 percent if all of the following are met:

- Residential frontage with 25-mph speed limit.
- Neither street is over 40 feet wide.
- No other "STOP" signs or traffic signal controls within 600 feet.
- The intersection is within one block of an activity center generating pedestrian traffic; AND at least 25 pedestrians cross the uncontrolled legs of the intersection in any two of the seven highest hours of the day.

Accidents: There occur three or more accidents in 12 months, or four in 24 months, that would be susceptible to correction with multiway stop control.

Visibility: The sight distance from the side street is less than 150 feet and cannot be improved in a reasonable manner.

Speed: The 85th percentile speed on the uncontrolled street exceeds 35 mph.

This criteria is intended for application to local street settings and allows for reduced threshold levels while remaining stringent enough to prevent "wholesale" stop control measures. The guidelines for multiway stop controls at arterial and collector streets should remain as outlined by current State and Federal guidelines.

Attach.

STAFF REPORT
SUMMARY OF CRITERIA OF OTHER AGENCIES
County of Los Angeles Department of Public Works

Agency/Source	I/S Volume Criteria	Side Street Volume	Accident Experience	Other Criteria
Federal Manual on Uniform Traffic Control Devices (MUTCD) and Caltrans Traffic Manual (In Use)	500 veh/hr, average of any 8 hours (70% of above when 85 th % speed > 40 mph)	200 veh + peds/hr, average of same 8 hrs. (70 % of above when 85 th % speed > 40 mph)	5 or more reported accidents in 12 months correctable by 4-way stop control	
LA County Adjacent to Schools Criteria (In-Use)	Combined veh and ped vol average 350 per hr, each of 2 hrs/day.	Combined veh and ped vol entering from minor street avg 140 units/hr; AND at least 20 peds/hr in same 2 hrs.	Not specified.	I/S of local streets contiguous to school
Greensboro, N.C. (In-Use)	100 veh/hr, average of any 4 hrs	25 veh/hr, average of same 4 hrs	(<i>Not included</i>)	Residential frontage. Speed limit <= 35 mph. Local Street Width <= 36' No R1 or T.S. within 1200' Each leg extends at least 600' from I/S. ADT<3000vpd on thru street.
Proposed LA County Residential Neighborhood	300 veh/hr, average of any 7 hours; or 180 veh/hr if 25 mph speed limit, streets not more 40 ft wide, residential frontage, no other STOP or signal within 600 ft.	One-third of intersection volume for same 7 hrs.	3 or more accidents in 12-month period; or 4 in 24-month period.	Intersection sight distance less than 150 feet; or The 85 th percentile speed on uncontrolled street greater than 35 mph.

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Agency/Source	I/S Volume Criteria	Side Street Vol.	Accident Experience	Other Criteria
<p>Fort Worth TX Transportation and Public Works <i>(In Use)</i></p> <p><i>For neighborhood locations: requester must submit written notice that residents at the corner concur. If E+T survey supports R1, requester must submit petition showing 2/3 of res/owners within 600' of I/S concur.</i></p>	Not specified	Not specified	Not specified	<p>Not on streets classified higher than residential collector. And</p> <p>No TS within 1000' or all-way stop within 600'. And</p> <p>The posted speed limit not >35 mph. And</p> <p>At least 2/3 of prop owners/residents concur (one vote per parcel). And</p> <p>85th percentile is >8 mph over posted speed limit. Or Cut through traffic exceeds 25% of total adt. And</p> <p>Significant adverse residential traffic diversion will not result.</p>

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Agency/Source	I/S Volume Criteria	Side Street Vol.	Accident Experience	Other Criteria
ITE, Jan/Feb 1999 (Proposed) <i>Meeting two or more of the criteria at right.</i>	300 veh/hr or more, each of 7 hrs.	1/3 of I/S Total	3 or more per 12 months.	Stop Sight Dist <150'. 85 th Percentile speed >30 MPH. Intersecting streets are collectors, and Split is 60/40 to 50/50
	60% of above if all conditions at right are satisfied.	1/3 of intersection total	Residential frontage and 25 mph speed limit. Streets are 40' or less wide. No other R1 or Traffic Signal within 600'. I/S is near a school, park, pool or other activity center AND at least 25 children walk or bike through I/S in each of any 2 hrs/day.	

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Agency/Source	I/S Volume Criteria	Side Street Vol.	Accident Experience	Other Criteria
LA DOT (Proposed)	<p>Avg 500 veh/hr, during any 6 hrs.</p> <p>If 85th percentile speed > 40 mph, use 70% of above.</p>	<p>Combined veh and peds 200/hr during same 6 hrs.</p> <p>If 85th percentile speed > 40 mph, use 70% of above,</p>	<p>Alternative measures proven unsuccessful, and</p> <p>3 or more correctable in 12 months; or</p> <p>2 per year in any two of last four years.</p>	<p>Residential local or collector streets: Other traffic control devices not feasible or ineffective. Speed > 30 mph on local street with > 1,000' to nearest R1 or TS. OR Speed > 35 mph and 2,000' or more to nearest R1 or TS on collector.</p> <p>Excessive traffic on local if: Dist betw R1 > 1,000' ADT > 1,000 vpd 25% > ADT on similar parallel street.</p> <p>Excessive traffic on collector if: Dist betw R1 > 2000' ADT > expected for abutting develmt</p>